



#4

SEQUENCE LISTING

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<120> ISOLATION OF THE LAMININ Y2 GENE IN
HORSES AND ITS USE IN DIAGNOSING JUNCTIONAL EPIDERMOLYSIS
BULLOSA

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Phe Ser Leu Leu Leu Pro Ala Ala Arg Ala Thr Ser Gly Arg Glu Val
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Cys Asp Cys Asn Gly Lys Ser Arg Gln Cys Ile Phe Asp Gln Glu Leu
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Arg Glu Arg Asp Arg Cys Leu Pro Cys Asn Cys Asn Ser Lys Gly Ser
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Phe Cys Tyr Gly His Ser Ala Ser Cys His Ser Ser Gly Asp Tyr Ser	
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Val His Lys Ile Ile Ser Ala Phe His Gln Asp Val Asp Gly Trp Lys	
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Ala His Asp Val Ile Leu Glu Gly Ala Gly Leu Arg Ile Thr Ala Pro	
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Ile Arg Ala Thr Tyr Gly Glu Tyr Ser Thr Gly Tyr Ile Asp Asn Val	
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Cys Ala Ser Gly Tyr Lys Arg Asp Ser Ala Arg Leu Gly Pro Phe Gly	
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Ile	Ser	Lys	Ala	Gln	Gly	Gly	Ala	Val	Pro	Asn	Ala	Glu	Leu	Glu	Gly	
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Asp Gly Ile Leu His Leu Ile Asp Gln Pro Gly Ser Val Asp Glu Glu	
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Leu	Gln	Asn	Thr	Asn	Ile	Pro	Pro	Ser	Glu	His	Tyr	Val	Gly	Pro	Asn		
			740					745									

Gln Val Glu Ala Lys Arg Leu Arg Gln Lys Ala Asp Ser Leu Ser Asn
 865 870 875 880
 Arg Val Thr Lys His Met Asp Glu Phe Lys His Val Gln Ser Asn Leu
 885 890 895
 Gly Asn Trp Glu Glu Glu Thr Arg Gln Leu Leu Gln Asn Gly Lys Asn
 900 905 910
 Gly Arg Gln Thr Ser Asp Gln Leu Leu Ser Arg Ala Asn Leu Ala Lys
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 Ser Arg Ala Gln Glu Ala Leu Ser Met Gly Asn Ala Thr Phe Tyr Glu
 930 935 940
 Val Glu Asn Ile Leu Lys Asn Leu Arg Glu Phe Asp Leu Gln Val Gly
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 Asp Lys Arg Ala Glu Ala Glu Glu Ala Met Lys Arg Leu Ser Tyr Ile
 965 970 975
 Ser Gln Lys Val Ala Gly Ala Ser Asp Lys Thr Lys Gln Ala Glu Ala
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 Ala Leu Gly Ser Ala Ala Ala Asp Ala Gln Arg Ala Lys Asn Ala Ala
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 Arg Glu Ala Leu Glu Ile Ser Gly Lys Ile Glu Gln Glu Ile Gly Gly
 1010 1015 1020
 Leu Asn Leu Glu Ala Asn Val Thr Ala Asp Gly Ala Leu Ala Met Glu
 1025 1030 1035 1040
 Lys Gly Leu Ala Thr Leu Lys Ser Glu Met Arg Glu Val Glu Gly Glu
 1045 1050 1055
 Leu Ser Arg Lys Glu Gln Glu Phe Asp Met Asp Met Asp Ala Val Gln
 1060 1065 1070
 Met Val Ile Ala Glu Ala Gln Arg Val Glu Asn Arg Ala Lys Asn Ala
 1075 1080 1085
 Gly Val Thr Ile Gln Asp Thr Leu Asn Thr Leu Asp Gly Ile Leu His
 1090 1095 1100
 Leu Ile Asp Gln Pro Gly Ser Val Asp Glu Glu Arg Leu Ile Leu Leu
 1105 1110 1115 1120
 Glu Gln Lys Leu Phe Arg Ala Lys Thr Gln Ile Asn Ser Gln Leu Arg
 1125 1130 1135
 Pro Leu Met Ser Glu Leu Glu Glu Arg Ala His Arg Gln Lys Gly His
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 Leu Arg Phe Leu Glu Thr Ser Ile Asp Gly Ile Leu Ala Asp Val Lys
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Lys Ser Arg Gln Cys Ile Phe Asp Arg Glu Leu His Arg Gln Thr Gly
35 40 45
Asn Gly Phe Arg Cys Leu Asn Cys Asn Asp Asn Thr Asp Gly Ile His
50 55 60
Cys Glu Lys Cys Lys Asn Gly Phe Tyr Arg His Arg Glu Arg Asp Arg
65 70 75 80
Cys Leu Pro Cys Asn Cys Asn Ser Lys Gly Ser Leu Ser Ala Arg Cys
85 90 95
Asp Asn Ser Gly Arg Cys Ser Cys Lys Pro Gly Val Thr Gly Ala Arg
100 105 110
Cys Asp Arg Cys Leu Pro Gly Phe His Met Leu Thr Asp Ala Gly Cys
115 120 125
Thr Gln Asp Gln Arg Leu Leu Asp Ser Lys Cys Asp Cys Asp Pro Ala
130 135 140
Gly Ile Ala Gly Pro Cys Asp Ala Gly Arg Cys Val Cys Lys Pro Ala
145 150 155 160
Val Thr Gly Glu Arg Cys Asp Arg Cys Arg Ser Gly Tyr Tyr Asn Leu
165 170 175
Asp Gly Gly Asn Pro Glu Gly Cys Thr Gln Cys Phe Cys Tyr Gly His
180 185 190
Ser Ala Ser Cys Arg Ser Ser Ala Glu Tyr Ser Val His Lys Ile Thr
195 200 205
Ser Thr Phe His Gln Asp Val Asp Gly Trp Lys Ala Val Gln Arg Asn
210 215 220
Gly Ser Pro Ala Lys Leu Gln Trp Ser Gln Arg His Gln Asp Val Phe
225 230 235 240
Ser Ser Ala Gln Arg Leu Asp Pro Val Tyr Phe Val Ala Pro Ala Lys
245 250 255
Phe Leu Gly Asn Gln Gln Val Ser Tyr Gly Gln Ser Leu Ser Phe Asp
260 265 270
Tyr Arg Val Asp Arg Gly Gly Arg His Pro Ser Ala His Asp Val Ile
275 280 285
Leu Glu Gly Ala Gly Leu Arg Ile Thr Ala Pro Leu Met Pro Leu Gly
290 295 300
Lys Thr Leu Pro Cys Gly Leu Thr Lys Thr Tyr Thr Phe Arg Leu Asn

305					310					315				320
Glu	His	Pro	Ser	Asn	Asn	Trp	Ser	Pro	Gln	Leu	Ser	Tyr	Phe	Glu Tyr
				325					330					335
Arg	Arg	Leu	Leu	Arg	Asn	Leu	Thr	Ala	Leu	Arg	Ile	Arg	Ala	Thr Tyr
			340					345					350	
Gly	Glu	Tyr	Ser	Thr	Gly	Tyr	Ile	Asp	Asn	Val	Thr	Leu	Ile	Ser Ala
		355					360					365		
Arg	Pro	Val	Ser	Gly	Ala	Pro	Ala	Pro	Trp	Val	Glu	Gln	Cys	Ile Cys
	370					375					380			
Pro	Val	Gly	Tyr	Lys	Gly	Gln	Phe	Cys	Gln	Asp	Cys	Ala	Ser	Gly Tyr
385					390					395				400
Lys	Arg	Asp	Ser	Ala	Arg	Leu	Gly	Pro	Phe	Gly	Thr	Cys	Ile	Pro Cys
			405						410					415
Asn	Cys	Gln	Gly	Gly	Gly	Ala	Cys	Asp	Pro	Asp	Thr	Gly	Asp	Cys Tyr
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Ser	Gly	Asp	Glu	Asn	Pro	Asp	Ile	Glu	Cys	Ala	Asp	Cys	Pro	Ile Gly
		435					440					445		
Phe	Tyr	Asn	Asp	Pro	His	Asp	Pro	Arg	Ser	Cys	Lys	Pro	Cys	Pro Cys
	450					455					460			
His	Asn	Gly	Phe	Ser	Cys	Ser	Val	Met	Pro	Glu	Thr	Glu	Glu	Val Val
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Cys	Asn	Asn	Cys	Pro	Pro	Gly	Val	Thr	Gly	Ala	Arg	Cys	Glu	Leu Cys
			485					490						495
Ala	Asp	Gly	Tyr	Phe	Gly	Asp	Pro	Phe	Gly	Glu	His	Gly	Pro	Val Arg
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Pro	Cys	Gln	Pro	Cys	Gln	Cys	Asn	Asn	Asn	Val	Asp	Pro	Ser	Ala Ser
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Gly	Asn	Cys	Asp	Arg	Leu	Thr	Gly	Arg	Cys	Leu	Lys	Cys	Ile	His Asn
	530					535					540			
Thr	Ala	Gly	Ile	Tyr	Cys	Asp	Gln	Cys	Lys	Ala	Gly	Tyr	Phe	Gly Asp
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Pro	Leu	Ala	Pro	Asn	Pro	Ala	Asp	Lys	Cys	Arg	Ala	Cys	Asn	Cys Asn
			565						570					575
Pro	Met	Gly	Ser	Glu	Pro	Val	Gly	Cys	Arg	Ser	Asp	Gly	Thr	Cys Val
		580						585					590	
Cys	Lys	Pro	Gly	Phe	Gly	Gly	Pro	Asn	Cys	Glu	His	Gly	Ala	Phe Ser
		595					600					605		
Cys	Pro	Ala	Cys	Tyr	Asn	Gln	Val	Lys	Ile	Gln	Met	Asp	Gln	Phe Met
	610					615					620			
Gln	Gln	Leu	Gln	Arg	Met	Glu	Ala	Leu	Ile	Ser	Lys	Ala	Gln	Gly Gly
625					630					635				640
Asp	Gly	Val	Val	Pro	Asp	Thr	Glu	Leu	Glu	Gly	Arg	Met	Gln	Gln Ala
			645						650					655
Glu	Gln	Ala	Leu	Gln	Asp	Ile	Leu	Arg	Asp	Ala	Gln	Ile	Ser	Glu Gly
		660						665					670	
Ala	Ser	Arg	Ser	Leu	Gly	Leu	Gln	Leu	Ala	Lys	Val	Arg	Ser	Gln Glu
		675					680					685		
Asn	Ser	Tyr	Gln	Ser	Arg	Leu	Asp	Asp	Leu	Lys	Met	Thr	Val	Glu Arg
	690					695					700			
Val	Arg	Ala	Leu	Gly	Ser	Gln	Tyr	Gln	Asn	Arg	Val	Arg	Asp	Thr His
705					710					715				720
Arg	Leu	Ile	Thr	Gln	Met	Gln	Leu	Ser	Leu	Ala	Glu	Ser	Glu	Ala Ser
			725						730					735
Leu	Gly	Asn	Thr	Asn	Ile	Pro	Ala	Ser	Asp	His	Tyr	Val	Gly	Pro Asn
		740						745					750	
Gly	Phe	Lys	Ser	Leu	Ala	Gln	Glu	Ala	Thr	Arg	Leu	Ala	Glu	Ser His
		755					760						765	

Val	Glu	Ser	Ala	Ser	Asn	Met	Glu	Gln	Leu	Thr	Arg	Glu	Thr	Glu	Asp	770	775	780
Tyr	Ser	Lys	Gln	Ala	Leu	Ser	Leu	Val	Arg	Lys	Ala	Leu	His	Glu	Gly	785	790	795
Val	Gly	Ser	Gly	Ser	Gly	Ser	Pro	Asp	Gly	Ala	Val	Val	Gln	Gly	Leu	805	810	815
Val	Glu	Lys	Leu	Glu	Lys	Thr	Lys	Ser	Leu	Ala	Gln	Gln	Leu	Thr	Arg	820	825	830
Glu	Ala	Thr	Gln	Ala	Glu	Ile	Glu	Ala	Asp	Arg	Ser	Tyr	Gln	His	Ser	835	840	845
Leu	Arg	Leu	Leu	Asp	Ser	Val	Ser	Arg	Leu	Gln	Gly	Val	Ser	Asp	Gln	850	855	860
Ser	Phe	Gln	Val	Glu	Glu	Ala	Lys	Arg	Ile	Lys	Gln	Lys	Ala	Asp	Ser	865	870	875
Leu	Ser	Thr	Leu	Val	Thr	Arg	His	Met	Asp	Glu	Phe	Lys	Arg	Thr	Gln	885	890	895
Lys	Asn	Leu	Gly	Asn	Trp	Lys	Glu	Glu	Ala	Gln	Gln	Leu	Leu	Gln	Asn	900	905	910
Gly	Lys	Ser	Gly	Arg	Glu	Lys	Ser	Asp	Gln	Leu	Leu	Ser	Arg	Ala	Asn	915	920	925
Leu	Ala	Lys	Ser	Arg	Ala	Gln	Glu	Ala	Leu	Ser	Met	Gly	Asn	Ala	Thr	930	935	940
Phe	Tyr	Glu	Val	Glu	Ser	Ile	Leu	Lys	Asn	Leu	Arg	Glu	Phe	Asp	Leu	945	950	955
Gln	Val	Asp	Asn	Arg	Lys	Ala	Glu	Ala	Glu	Glu	Ala	Met	Lys	Arg	Leu	965	970	975
Ser	Tyr	Ile	Ser	Gln	Lys	Val	Ser	Asp	Ala	Ser	Asp	Lys	Thr	Gln	Gln	980	985	990
Ala	Glu	Arg	Ala	Leu	Gly	Ser	Ala	Ala	Ala	Asp	Ala	Gln	Arg	Ala	Lys	995	1000	1005
Asn	Gly	Ala	Gly	Glu	Ala	Leu	Glu	Ile	Ser	Ser	Glu	Ile	Glu	Gln	Glu	1010	1015	1020
Ile	Gly	Ser	Leu	Asn	Leu	Glu	Ala	Asn	Val	Thr	Ala	Asp	Gly	Ala	Leu	1025	1030	1035
Ala	Met	Glu	Lys	Gly	Leu	Ala	Ser	Leu	Lys	Ser	Glu	Met	Arg	Glu	Val	1045	1050	1055
Glu	Gly	Glu	Leu	Glu	Arg	Lys	Glu	Leu	Glu	Phe	Asp	Thr	Asn	Met	Asp	1060	1065	1070
Ala	Val	Gln	Met	Val	Ile	Thr	Glu	Ala	Gln	Lys	Val	Asp	Thr	Arg	Ala	1075	1080	1085
Lys	Asn	Ala	Gly	Val	Thr	Ile	Gln	Asp	Thr	Leu	Asn	Thr	Leu	Asp	Gly	1090	1095	1100
Leu	Leu	His	Leu	Met	Asp	Gln	Pro	Leu	Ser	Val	Asp	Glu	Glu	Gly	Leu	1105	1110	1115
Val	Leu	Leu	Glu	Gln	Lys	Leu	Ser	Arg	Ala	Lys	Thr	Gln	Ile	Asn	Ser	1125	1130	1135
Gln	Leu	Arg	Pro	Met	Met	Ser	Glu	Leu	Glu	Arg	Ala	Arg	Gln	Gln		1140	1145	1150
Arg	Gly	His	Leu	His	Leu	Leu	Glu	Thr	Ser	Ile	Asp	Gly	Ile	Leu	Ala	1155	1160	1165
Asp	Val	Lys	Asn	Leu	Glu	Asn	Ile	Arg	Asp	Asn	Leu	Pro	Pro	Gly	Cys	1170	1175	1180
Tyr	Asn	Thr	Gln	Ala	Leu	Glu	Gln	Gln								1185	1190	

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			20					25					30		
Lys	Ser	Arg	Gln	Cys	Val	Phe	Asp	Gln	Glu	Leu	His	Arg	Gln	Ala	Gly
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Ser	Gly	Phe	Arg	Cys	Leu	Asn	Cys	Asn	Asp	Asn	Thr	Ala	Gly	Val	His
	50					55					60				
Cys	Glu	Arg	Ser	Arg	Glu	Gly	Phe	Tyr	Gln	His	Gln	Ser	Lys	Ser	Arg
65					70				75						80
Cys	Leu	Pro	Cys	Asn	Cys	His	Ser	Lys	Gly	Ser	Leu	Ser	Ala	Gly	Cys
				85					90					95	
Asp	Asn	Ser	Gly	Gln	Cys	Arg	Cys	Lys	Pro	Gly	Val	Thr	Gly	Gln	Arg
			100					105						110	
Cys	Asp	Gln	Cys	Gln	Pro	Gly	Phe	His	Met	Leu	Thr	Asp	Ala	Gly	Cys
		115					120					125			
Thr	Arg	Asp	Gln	Gly	Gln	Leu	Asp	Ser	Lys	Cys	Asp	Cys	Asp	Pro	Ala
	130					135					140				
Gly	Ile	Ser	Gly	Pro	Cys	Asp	Ser	Gly	Arg	Cys	Val	Cys	Lys	Pro	Ala
145					150					155					160
Val	Thr	Gly	Glu	Arg	Cys	Asp	Arg	Cys	Arg	Pro	Arg	Asp	Tyr	His	Leu
				165					170					175	
Asp	Arg	Ala	Asn	Pro	Glu	Gly	Cys	Thr	Gln	Cys	Phe	Cys	Tyr	Gly	His
			180					185					190		
Ser	Ala	Ser	Cys	His	Ala	Ser	Ala	Asp	Phe	Ser	Val	His	Lys	Ile	Thr
		195					200					205			
Ser	Thr	Phe	Ser	Gln	Asp	Val	Asp	Gly	Trp	Lys	Ala	Val	Gln	Arg	Asn
	210					215					220				
Gly	Ala	Pro	Ala	Lys	Leu	His	Trp	Ser	Gln	Arg	His	Arg	Asp	Val	Phe
225					230					235					240
Ser	Ser	Ala	Arg	Arg	Ser	Asp	Pro	Val	Tyr	Phe	Val	Ala	Pro	Ala	Lys
			245					250						255	
Phe	Leu	Gly	Asn	Gln	Gln	Val	Ser	Tyr	Gly	Gln	Ser	Leu	Ser	Phe	Asp
		260						265				270			
Tyr	Arg	Val	Asp	Arg	Gly	Gly	Arg	Gln	Pro	Ser	Ala	Tyr	Asp	Val	Ile
	275						280					285			
Leu	Glu	Gly	Ala	Gly	Leu	Gln	Ile	Arg	Ala	Pro	Leu	Met	Ala	Pro	Gly
	290					295					300				
Lys	Thr	Leu	Pro	Cys	Gly	Ile	Thr	Lys	Thr	Tyr	Thr	Phe	Arg	Leu	Asn
305					310					315					320
Glu	His	Pro	Ser	Ser	His	Trp	Ser	Pro	Gln	Leu	Ser	Tyr	Phe	Glu	Tyr
			325						330					335	
Arg	Arg	Leu	Leu	Arg	Asn	Leu	Thr	Ala	Leu	Leu	Met	Ile	Arg	Ala	Thr
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Ala	Arg	Pro	Val	Leu	Gly	Ala	Pro	Ala	Pro	Trp	Val	Glu	Arg	Cys	Val
	370					375					380				
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Cys	Asn	Cys	Gln	Gly	Glu	Gly	Ala	Cys	Asp	Pro	Asp	Thr	Gly	Asp	Cys		
			420					425					430				
Tyr	Ser	Gly	Asp	Glu	Asn	Pro	Asp	Ile	Glu	Cys	Ala	Asp	Cys	Pro	Ile		
		435					440					445					
Gly	Phe	Tyr	Asn	Asp	Pro	His	Asp	Pro	Arg	Ser	Cys	Lys	Pro	Cys	Pro		
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465					470				475						480		
Val	Cys	Asn	Asn	Cys	Pro	Pro	Gly	Val	Thr	Gly	Ala	Arg	Cys	Glu	Leu		
			485					490						495			
Cys	Ala	Asp	Gly	Phe	Phe	Gly	Asp	Pro	Phe	Gly	Glu	His	Gly	Pro	Val		
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Arg	Pro	Cys	Gln	Arg	Cys	Gln	Cys	Asn	Asn	Asn	Val	Asp	Pro	Asn	Ala		
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Ser	Gly	Asn	Cys	Asp	Gln	Leu	Thr	Gly	Arg	Cys	Leu	Lys	Cys	Ile	Tyr		
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Asp	Pro	Leu	Ala	Pro	Asn	Pro	Ala	Asp	Lys	Cys	Arg	Ala	Cys	Asn	Cys		
			565					570						575			
Ser	Pro	Met	Gly	Ala	Glu	Pro	Gly	Glu	Cys	Arg	Gly	Asp	Gly	Ser	Cys		
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Val	Cys	Lys	Pro	Gly	Phe	Gly	Ala	Phe	Asn	Cys	Asp	His	Ala	Ala	Leu		
	595					600					605						
Thr	Ser	Cys	Pro	Ala	Cys	Tyr	Asn	Gln	Val	Lys	Ile	Gln	Met	Asp	Gln		
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Phe	Thr	Gln	Gln	Leu	Gln	Ser	Leu	Glu	Ala	Leu	Val	Ser	Lys	Ala	Gln		
625					630				635						640		
Gly	Gly	Gly	Gly	Gly	Gly	Thr	Val	Pro	Val	Gln	Leu	Glu	Gly	Arg	Ile		
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Ser	Glu	Gly	Ala	Met	Arg	Ala	Val	Ala	Val	Arg	Leu	Ala	Lys	Ala	Arg		
	675					680					685						
Ser	Gln	Glu	Asn	Asp	Tyr	Lys	Thr	Arg	Leu	Asp	Asp	Leu	Lys	Met	Thr		
	690					695				700							
Ala	Glu	Arg	Ile	Arg	Ala	Leu	Gly	Ser	Gln	His	Gln	Asn	Arg	Val	Gln		
705					710				715						720		
Asp	Thr	Ser	Arg	Leu	Ile	Ser	Gln	Met	Arg	Leu	Ser	Leu	Ala	Gly	Ser		
			725					730						735			
Glu	Ala	Leu	Leu	Glu	Asn	Thr	Asn	Ile	His	Ser	Ser	Glu	His	Tyr	Val		
	740						745					750					
Gly	Pro	Asn	Asp	Phe	Lys	Ser	Leu	Ala	Gln	Glu	Ala	Thr	Arg	Lys	Ala		
	755						760					765					
Asp	Ser	His	Ala	Glu	Ser	Ala	Asn	Ala	Met	Lys	Gln	Leu	Ala	Arg	Glu		
	770					775					780						
Thr	Glu	Asp	Tyr	Ser	Lys	Gln	Ala	Leu	Ser	Leu	Ala	Arg	Lys	Leu	Leu		
785					790				795						800		
Ser	Gly	Gly	Gly	Gly	Ser	Gly	Ser	Trp	Asp	Ser	Ser	Val	Val	Gln	Gly		
			805					810						815			
Leu	Met	Gly	Lys	Leu	Glu	Lys	Thr	Lys	Ser	Leu	Ser	Gln	Gln	Leu	Ser		
		820						825					830				
Leu	Glu	Gly	Thr	Gln	Ala	Asp	Ile	Glu	Ala	Asp	Arg	Ser	Tyr	Gln	His		
	835						840					845					
Ser	Leu	Arg	Leu	Leu	Asp	Ser	Ala	Ser	Gln	Leu	Gln	Gly	Val	Ser	Asp		

850	855	860
Leu Ser Phe Gln Val Glu Ala Lys Arg Ile Arg Gln Lys Ala Asp Ser		
865	870	875
Leu Ser Asn Leu Val Thr Arg Gln Thr Asp Ala Phe Thr Arg Val Arg		880
	885	890
Asn Asn Leu Gly Asn Trp Glu Lys Glu Thr Arg Gln Leu Leu Gln Thr		895
	900	905
Gly Lys Asp Arg Arg Gln Thr Ser Asp Gln Leu Leu Ser Arg Ala Asn		910
	915	920
Leu Ala Lys Asn Arg Ala Gln Glu Ala Leu Ser Met Gly Asn Ala Thr		925
	930	935
Phe Tyr Glu Val Glu Asn Ile Leu Lys Asn Leu Arg Glu Phe Asp Leu		940
945	950	955
Gln Val Glu Asp Arg Lys Ala Glu Ala Glu Glu Ala Met Lys Arg Leu		960
	965	970
Ser Ser Ile Ser Gln Lys Val Ala Asp Ala Ser Asp Lys Thr Gln Gln		975
	980	985
Ala Glu Thr Ala Leu Gly Ser Ala Thr Ala Asp Thr Gln Arg Ala Lys		990
	995	1000
Asn Ala Ala Arg Glu Ala Leu Glu Ile Ser Ser Glu Ile Glu Leu Glu		1005
1010	1015	1020
Ile Gly Ser Leu Asn Leu Glu Ala Asn Val Thr Ala Asp Gly Ala Leu		
1025	1030	1035
Ala Met Glu Lys Gly Thr Ala Thr Leu Lys Ser Glu Met Arg Glu Met		1040
	1045	1050
Ile Glu Leu Ala Arg Lys Glu Leu Glu Phe Asp Thr Asp Lys Asp Thr		1055
	1060	1065
Val Gln Leu Val Ile Thr Glu Ala Gln Gln Ala Asp Ala Arg Ala Thr		1070
	1075	1080
Ser Ala Gly Val Thr Ile Gln Asp Thr Leu Asn Thr Leu Asp Gly Ile		1085
1090	1095	1100
Leu His Leu Ile Asp Gln Pro Gly Ser Val Asp Glu Glu Gly Met Met		
1105	1110	1115
Leu Leu Glu Gln Gly Leu Phe Gln Ala Lys Thr Gln Ile Asn Ser Arg		1120
	1125	1130
Leu Arg Pro Leu Met Ser Asp Leu Glu Glu Arg Val Arg Arg Gln Arg		1135
	1140	1145
Asn His Leu His Leu Leu Glu Thr Ser Ile Asp Gly Ile Leu Ala Asp		1150
	1155	1160
Val Lys Asn Leu Glu Asn Ile Arg Asp Asn Leu Pro Pro Gly Cys Tyr		1165
1170	1175	1180
Asn Thr Gln Ala Leu Glu Gln Gln		
1185	1190	